

Amendment to the Claims

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A ~~variable-length~~ broadband antenna for transmitting or receiving signals at a plurality of frequencies comprising:

a plurality of antenna segments;

a plurality of selectively actuatable switches for interconnecting said antenna segments;

and

a switching mechanism operably coupled to said plurality of selectively actuatable switches for actuating said plurality of switches at a switching rate that is greater than two times the highest of said plurality of frequencies.

Claim 2 (currently amended): A ~~variable-length~~ The broadband antenna according to claim 1 wherein said switching mechanism comprises:

a switch controller and

at least one light source operably coupled to said switch controller.

Claim 3 (currently amended): A ~~variable-length~~ The broadband antenna according to claim 2 wherein said switch controller switches said at least one light source from a non-emissive to an emissive state or from an emissive to a non-emissive state.

Claim 4 (currently amended): ~~A variable length~~ The broadband antenna according to claim 3 wherein said at least one light source sequentially actuate said actuable switches at said switching rate.

Claim 5 (currently amended): ~~A variable length~~ The broadband antenna according to claim 1 wherein said switching mechanism comprises:

- a switching device;
- at least one light source operably coupled to said switching device; and
- a delay mechanism operably coupled to said at least one light source for effecting delay in actuating said plurality of selectively actuable switches.

Claim 6 (currently amended): ~~A variable length~~ The broadband antenna according to claim 5 wherein said switching device simultaneously switches said at least one light source from a non-emissive to an emissive state or from an emissive to a non-emissive state.

~~Claim 7 (currently amended): A variable length The broadband antenna according to claim 6~~

wherein said delay mechanism comprises a plurality of optical fibers and wherein each of said plurality of optical fibers has a different physical length with respect to the other optical fibers.

Claim 8 (currently amended): ~~A variable length~~ The broadband antenna according to claim 6 wherein said delay mechanism comprises a plurality of optical fibers and a plurality of optical retarders operably coupled to said plurality of optical fibers for changing the effective length.

Claim 9 (currently amended): ~~A variable length~~ The broadband antenna according to claim 1 wherein said switching mechanism comprises:

- a switching device;
- a single light source operably coupled to said switching device;
- at least one diffraction grating operably coupled to said light source; and
- a delay mechanism operably coupled to said at least one diffraction grating for effecting delay in actuating said plurality of selectively actuatable switches.

Claim 10 (currently amended): ~~A variable length~~ The broadband antenna according to claim 9 wherein said switching device switches said single light source from a non-emissive to an emissive state or from an emissive to a non-emissive state.

Claim 11 (currently amended): ~~A variable length~~ The broadband antenna according to claim 10 wherein said single light source is a multi-wavelength light source.

~~Claim 12 (currently amended): A variable length The broadband antenna according to claim 11~~

wherein said at least one diffraction grating diffract light from said light source to produce a plurality of light sources.

Claim 13 (currently amended): ~~A variable length~~ The broadband antenna according to claim 10 wherein said delay mechanism comprises a plurality of optical fibers and wherein each of said plurality of optical fibers has a different physical length with respect to the other optical fibers.

Claim 14 (currently amended): ~~A variable length~~ The broadband antenna according to claim 10 wherein said delay mechanism comprises a plurality of optical fibers and a plurality of optical retarders operably coupled to said plurality of optical fibers for changing the effective length.

Claim 15 (currently amended): ~~A variable length~~ The broadband antenna according to claim 1 wherein each of said plurality of antenna segments comprises a dielectric container for holding a conductive fluid and wherein said variable length antenna further comprises:

- a conductive fluid;

- a reservoir operably coupled to said plurality of dielectric containers for holding said conductive fluid; and

- a pressure regulator system operably coupled to said plurality of dielectric containers for controlling the pressure in said plurality of dielectric containers.

Claim 16 (currently amended): ~~A variable length~~ The broadband antenna according to claim 15 wherein said pressure regulator system comprises devices operably coupled to said plurality of

~~dielectric containers for controlling the pressure in said plurality of dielectric containers~~

Claim 17 (currently amended): ~~A variable length~~ broadband antenna for transmitting or receiving signals at a plurality of frequencies comprising:

- a plurality of antenna segments; and

- a source of at least one electromagnetic beam for decoupling said antenna segments to change the frequency of operation.

Claim 18 (currently amended): ~~A variable length~~ The broadband antenna according to claim 17 wherein said source of at least one electromagnetic beam comprises at least one high frequency electromagnetic beam source.

Claim 19 (currently amended): ~~A variable length~~ The broadband antenna according to claim 18 wherein said source of at least one electromagnetic beam comprises a hydrogen cyanide (HCN) laser.

Claim 20 (currently amended): ~~A variable length~~ The broadband antenna according to claim 18 wherein said source of at least one electromagnetic beam comprises a hydrogen atom maser.